Intelligence Modeling & Simulation for Evaluation (IMASE)

T&E Days

Purpose

- To provide information on IEWTD initiatives of Modeling, Simulation & Instrumentation (M&S&I) in support of operational testing and, secondarily, other domains under the tenets of Simulation Based Acquisition (SBA) and Simulation & Modeling for Acquisition Requirements & Training (SMART).

Agenda

- Requirements
- M&S Availability
- IMASE Program
- Capabilities-Creating the Operational Test Environment
- IMASE Availability

Requirements & Guidance (T&E)

- Regulations:
  - DoD 5000.2 requires T&E
  - AR 73-1, supporting 5000.2
  - AR 381-11, Production Requirements and Threat Intelligence Support to the U.S. Army
  - ATEC PAM 73-1, supporting AR 73-1
    - Conduct T&E of acquisition systems
    - Mission-Oriented Evaluations (TOC "value added")

Requirements & Guidance (M&S)

- # M&S
  - DoD 5000.59, M, P
  - Simulation Based Acquisition (SBA)
  - Simulation for Modeling Acquisition Requirements and Training (SMART)
  - Simulation, Test & Evaluation Process (STEP)
    - Use M&S whenever and wherever possible

IEWTD Operational Test Mission (Macro)

- Support and enable operational testing of IEW systems (sensor and processing) in order to provide validated M&S support in an efficient, consistent and cost effective manner.

- Provide the environment to support mission oriented evaluations.

Test Support Approach

SUCCESSFUL TESTING PROGRAM

M&S&I Effort, Foundation

SCENARIO GENERATION

PRODUCT DEVELOPMENT

PRODUCT DELIVERY

PERFORMANCE SCORING
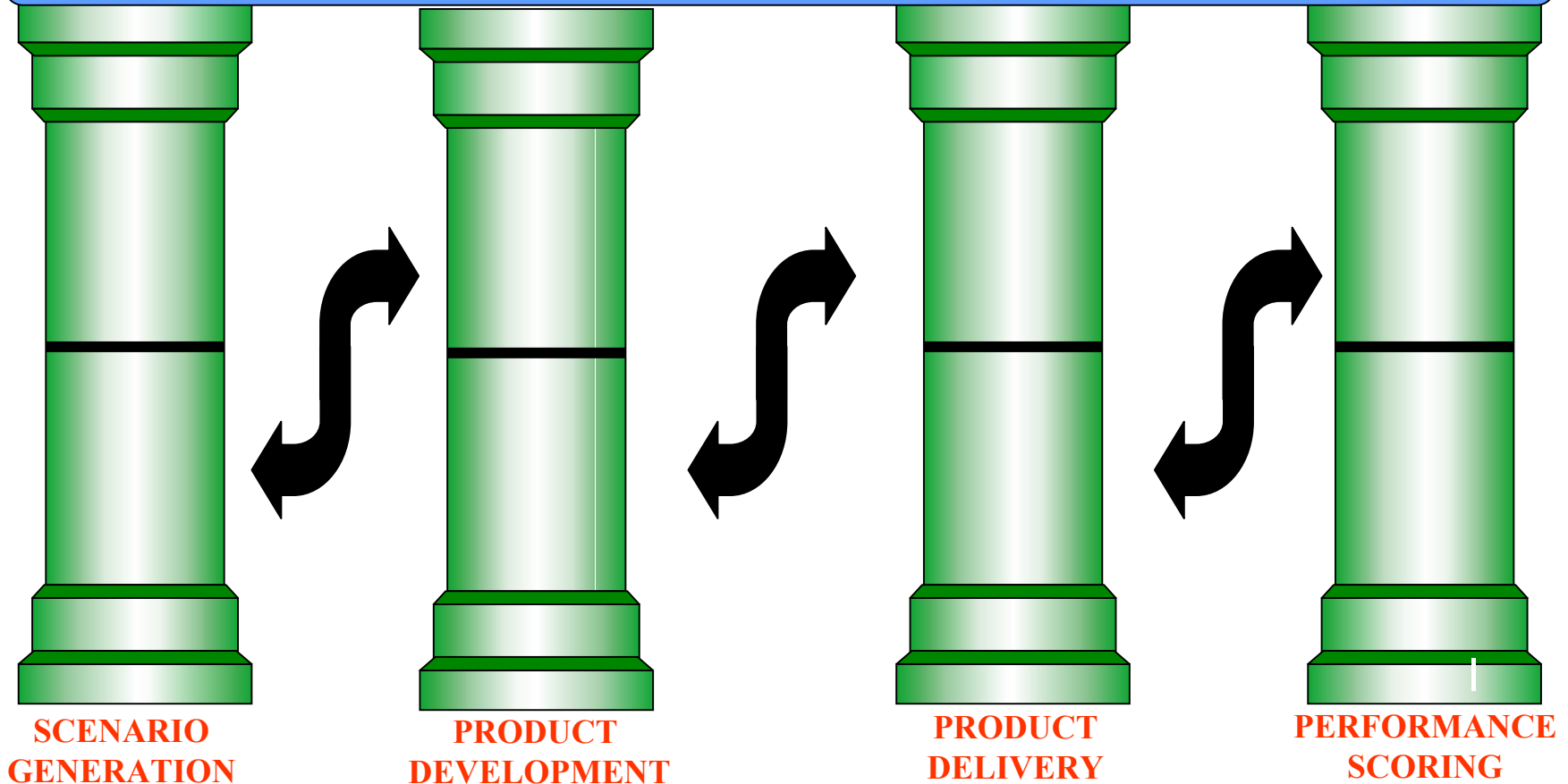
IEWTD M&S&I
Mission Requirements

- Object (entity) level resolution
- High-fidelity products
- Multiple Security Levels
- Causality
- Live, virtual, constructive
- Interactive (short of freeplay)
- Interface with other M&S Federations
- TRADOC Defense Planning Guidance derived scenarios

IEWTD M&S&I Uniquely Qualified to Provide "Threat-based Capability"

Creating the Operational Test Environment Using M&S&I

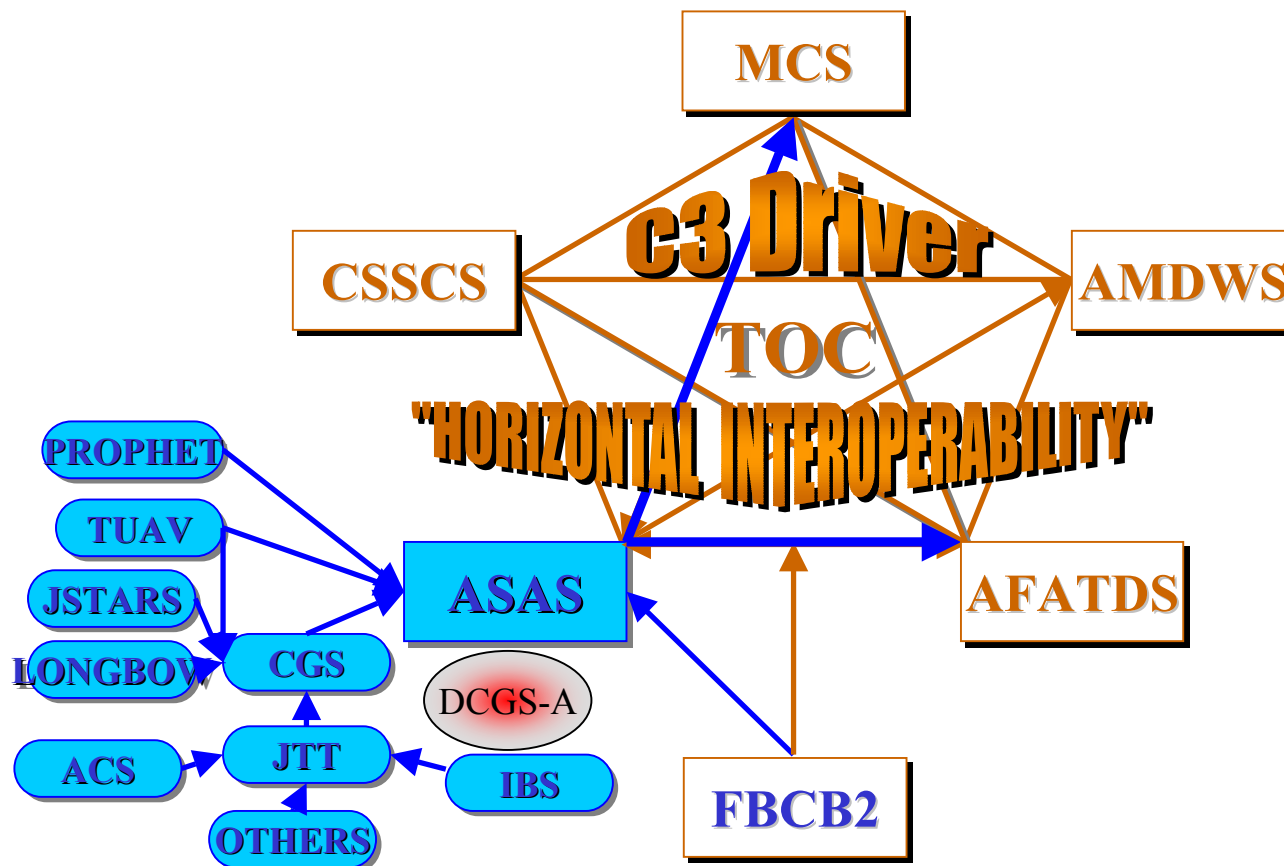Test Environment

Sensor Data/ Reports

TOC "value added"
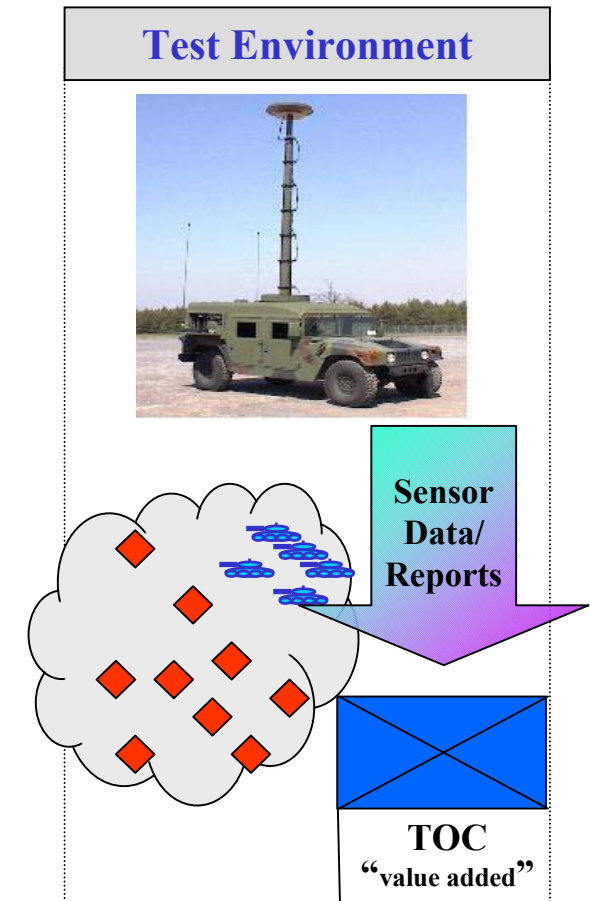
Other DoD M&S Options

- Generally, DoD MODSIMs are designed for training or T&E of areas other than IEW/ISR. They lack the rigor and fidelity required for the approach needed for IEW/ISR T&E.

T&E M&S&I, C3 Driver and IMASE - Comparison/Contrast

MCS

CSSCS

c3 Driver

AMDWS

TOC

"HORIZONTAL INTEROPERABILITY"

PROPHET

TUAV

JSTARS

LONGBOW

CGS

ASAS

DCGS-A

ACS

JTT

IBS

OTHERS

AFATDS

FBCB2

C3 Driver - Drives the ABCS (Horizonatal Interop.)

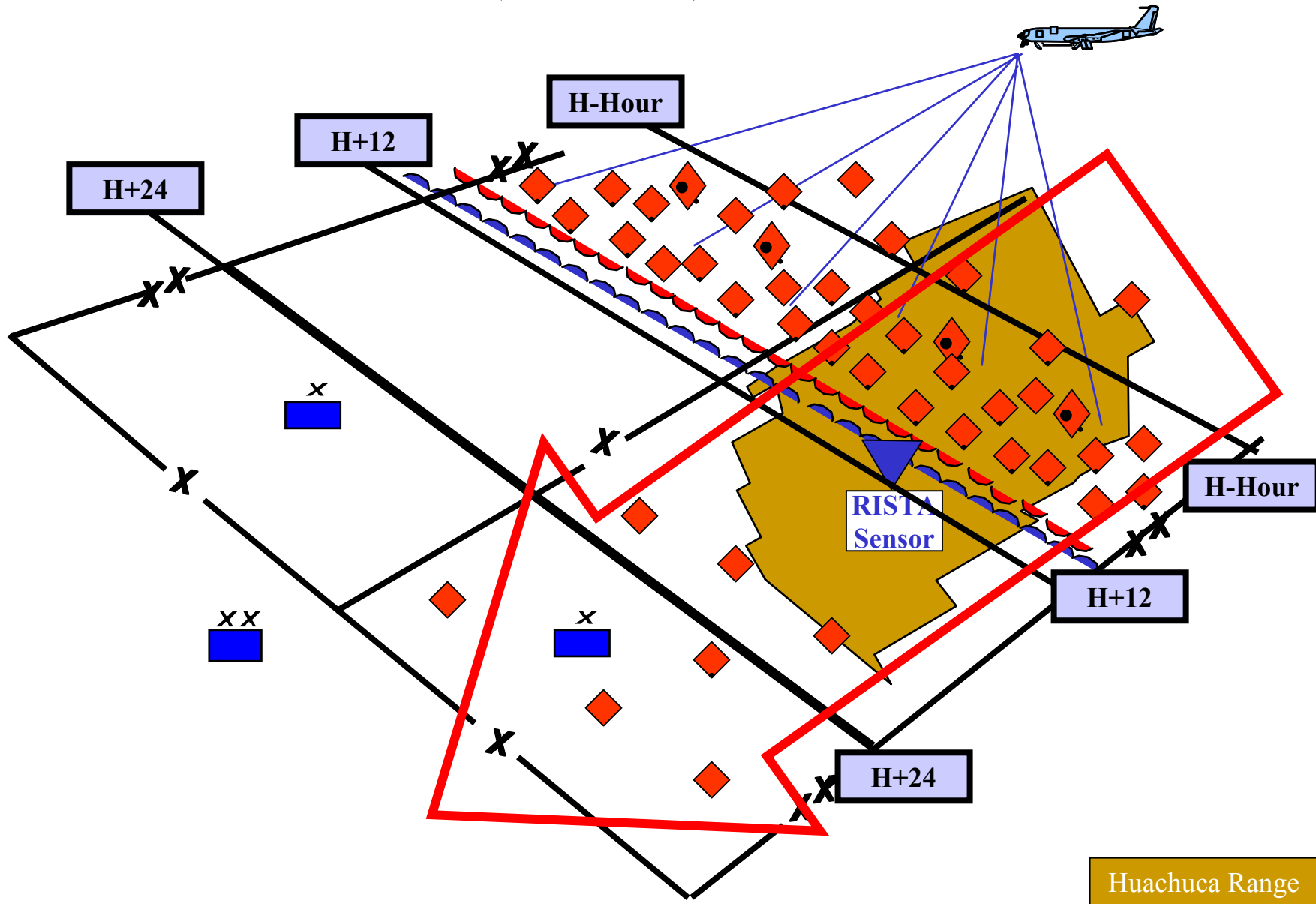**IMASE- Drives the IEW/ISR-Internal BOS Structure**

IMASE, ISSS, ISGT, COMSIM
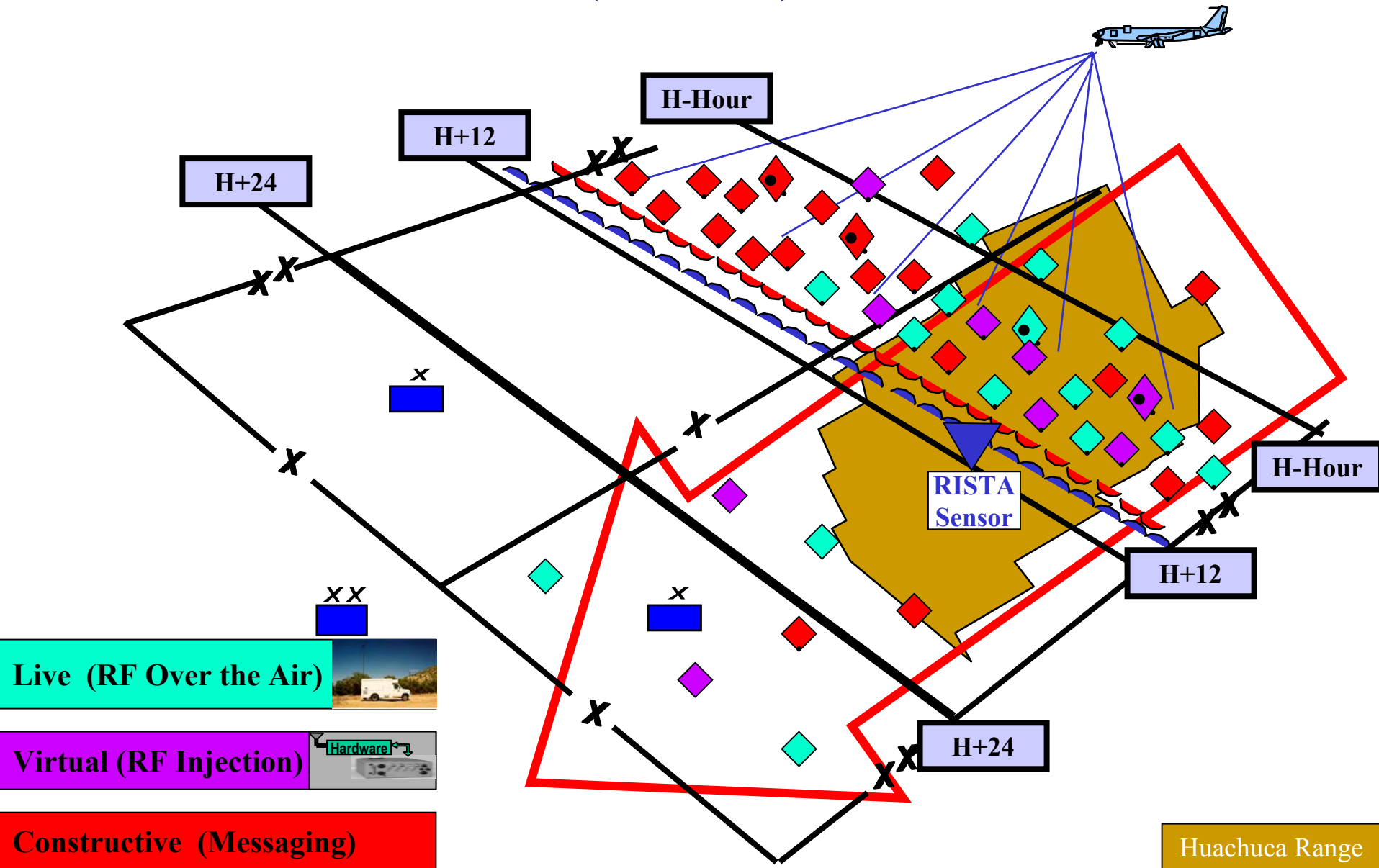## Program Description

- **IMASE** - Overall ATEC IEWTD program to develop a simulation environment for the seamless integration of live/constructive/virtual entities in a test environment. Consists of Scenario Development., Product Development., Product Delivery, and System Under Test Scoring.

- **ISSS** - M&S portion which includes simulation, product development (digital, graphics), product delivery and scoring.

- **ISGT*** - The scenario generation tool used to develop the IMASE simulation and threat scenarios. Provides theater to entity level definition of the battlefield to support intelligence product development. Provides simulation control in the COMSIM/RF environment.

- **COMSIM***-The tool used to develop & deliver signals (live & virtual transmissions) represented in the ISGT scenario.

*Partnership with PM STRI, PM ITTS, TSMO

Creating the Test Environment
(Threat)

H-Hour

H+12

H+24

H-Hour

H+12

H+24

RISTA
Sensor

Huachuca Range

Creating the Test Environment (Threat)

H-Hour

H+12

H+24

H+24

H+12

H-Hour

RISTA Sensor

Live (RF Over the Air)

Virtual (RF Injection)

Hardware

Constructive (Messaging)

Huachuca Range

Creating the Operational Test Environment via M&S&I

TRADOC Approved Scenarios (MACRO)

Scenario Enhancement

Image Scenario Generation Tool (I.S.G.T.)

- Threat Based
- Object Level Resolution
- Equipment attributes
- Terrain/WX
- Visualization
- Soldier Products

Scenario Data

(MICRO)

Scenario Data

(SIS)

Sensor Interface System

- Master Events List
- RF Signatures
- Scoring Database

RF Over the Air

Live

Virtual

RF Injection

Hardware

ISSS — IMASE SIMULATION & SCORING SUBSYSTEM

- Simulator
- RISTA Sensor Models
- Message/Product Generator
- Scoring Database

Constructive Messaging

Test Environment

Sensor Data/ Reports

TOC "value added"

SCENARIO GENERATION | **PRODUCT DEVELOPMENT** | **PRODUCT DELIVERY** | **PERFORMANCE SCORING**

Uniquely Qualified to Provide the Threat Test Environment

M&S&I Solution for IEWTD

- IMASE Program Development
- Seek community partnership, sponsorship and advocacy
  - e.g. ATEC, OSD, DA DCSINT, PEOs, PMs
- Federate with other M&S, as appropriate

Ultimately focused on IEW/ISR support to Objective Force

IMASE Availability

- IOC = 31 Mar 03
  - Limited auto scenario generation capability
  - Robust simulator and messaging capability
  - Additional RF "over the air" capability
- FOC = 31 Mar 05
  - Full auto scenario generation capability
  - Robust delivery and scoring capability
  - Maturing RF injection capability

US Army Operational Test Command

QUESTIONS?